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[54] **METHOD FOR IN VIVO REDUCTION OF NITRIC OXIDE LEVELS AND COMPOSITIONS USEFUL THEREFOR**

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Related U.S. Application Data

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[52] **U.S. Cl.** **514/599**; 514/491

[58] **Field of Search** 514/599, 491

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[57] **ABSTRACT**

In accordance with the present invention, there are provided methods for the in vivo reduction of nitric oxide levels in a mammalian subject. In contrast to the inhibitory approach described in the prior art (i.e., wherein the function of the enzymes responsible for nitric oxide production is inhibited), the present invention employs a scavenging approach whereby overproduced nitric oxide is bound in vivo to a suitable nitric oxide scavenger. The resulting complex renders the nitric oxide harmless, and is eventually excreted in the urine of the host. An exemplary nitric oxide scavenger contemplated for use in the practice of the present invention is a dithiocarbamate-ferrous iron complex. This complex binds to .NO, forming a stable, water-soluble NO-containing complex having a characteristic three-line spectrum (indicative of a mononitrosyl-Fe complex) which can readily be detected at ambient temperatures by electron paramagnetic resonance (EPR) spectroscopy. The present invention relates to methods for reducing in vivo levels of .NO as a means of treating subjects afflicted with inflammatory and/or infectious disease. Nitric oxide scavengers are administered to a host in need of such treatment; these scavengers interact with in vivo produced .NO, forming a stable NO-containing complex. The NO-containing complex is then filtered through the kidneys, concentrated in the urine, and eventually excreted by the subject, thereby reducing in vivo .NO levels.

33 Claims, 6 Drawing Sheets